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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bourdev et al.
 Serial No. : 09/447,024
 Filed : November 22, 1999
 Title : PROCESSING COMPLEX REGIONS OF ILLUSTRATION ARTWORK

Art Unit : 2671
 Examiner : Scott A. Wallace

Commissioner for Patents
 P.O. Box 1450
 Alexandria, VA 22313-1450

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REPLY TO ACTION OF DECEMBER 5, 2003

In reply to the Office Action of December 5, 2003, Applicant submits the following remarks.

Claims 1-28 are pending. Claims 1 and 15 are independent claims. Claims 1, 5-1, 15, 19-24, 28 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over U.S. Patent No. 5,600,763 to Greene et al. "Greene." Claims 2-4, 12-14, 16-18, 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

INTERVIEW SUMMARY

Applicant thanks the Examiner for the courtesy of an interview conducted on March 3, 2004. Examiner Scott Wallace, Supervisory Patent Examiner Mark Zimmerman, and Applicant's counsel Tim Pham participated in the interview. The participants discussed claim 1 and Greene. In particular, the participants discussed whether Green suggests determining the total number of outlines of pieces of artwork that map to a cell of the grid.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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103 REJECTIONS

Claim 1 stands rejected as being obvious in view of Greene. Applicant respectfully traverses the rejection. Claim 1 recites “[a] computer-based method of processing a computer graphics illustration that includes one or more pieces of artwork, the method comprising: mapping outlines of at least one of the pieces of artwork onto a grid of cells; determining the total number of outlines of pieces of artwork that map to a cell of the grid; and identifying the cell as a complex region based on the total number of outlines that map to the cell.” As can be seen, claim 1 requires a mapping of outlines onto a grid of cells and, furthermore, identifying a cell as a complex region based on the total number of outlines that map to the cell.

In the office action, the Examiner recognizes that Greene does not disclose “determining the total number of outlines of pieces of artwork that map to a cell of the grid; and identifying the cell as a complex region based on the total number of outlines that map to the cell,” as recited by claim 1. However, the Examiner contends that lines 29-40 of column 6 and Fig. 5B in Greene disclose “determining the number of primitives that map to a cell and identifying the region as complex by the number of primitives in the region,” (Paragraph 4 of Office Action) and that such a disclosure suggests Applicant’s determining and identifying steps.

Applicant must respectfully disagree because lines 29-40 of column 6 and Fig. 5B do not disclose “determining the number of primitives that map to a cell and identifying the region as complex by the number of primitives in the region,” as the Examiner contends. Rather, this portion of Greene discloses a process that applies quadtree subdivision “whenever more than some fixed number of primitives, e.g., 10, are determined to be *visible*.” (Emphasis added.) Primitives that are in the region but which are hidden, for example, by other primitives, do not count in the decision on whether to subdivide a quadtree cell. Thus, assuming *arguendo* that Greene’s primitives suggests Applicant’s outlines and Greene’s subdivision suggest Applicant’s identifying a cell as a complex region (points Applicant does not necessarily concede), Greene, at best, can be construed to disclose identifying a cell as a complex region based on the number of outlines that map to the cell and that are *visible*, which is not the same as and, hence, does not suggest identifying a cell as a complex region based on the total number of outline that map to the cell, as recited by claim 1. The former would not consider outlines that are hidden, whereas the latter would. For at least the above reason, Greene does not disclose or suggest claim 1.

Moreover, Applicant submits that not only does Greene fail to disclose or suggest claim 1, Greene in fact teaches away from claim 1. One of ordinary skill in the art at the time of the invention, in looking at Greene, which teaches using only visible primitives, would be lead away from identifying a cell as a complex region based on the total number of outlines that map to the cell, as required by claim 1. Greene, thus, teaches away from claim 1.

The Examiner suggests that Greene discloses a process in which primitives are culled, based on whether they are visible or hidden, before they are mapped onto a display screen so that only the visible ones are mapped. Consequently, in this process, the total number of primitives that is mapped to a cell is the same as the number of visible primitives that map to the cell. The applicant respectfully disagrees because in order to determine whether a primitive is visible or not as it is displayed on a screen, one must first map the primitive to the screen. Take, for example, primitives P1 and P2 shown in FIGS. 2C and 2D. To display the appearance of these primitives on the screen, one must select a perspective, in this case, the point of view of the eye shown in FIG. 2C, and map the primitives onto the screen using the selected perspective. The selection and mapping produces the image shown in FIG. 2D. Without the selection and the mapping, it would not be possible to determine the appearance of the primitives and, hence, determine whether or not P1 hides P2. Thus, Applicant respectfully submits that it is not possible, in Greene's process, to cull primitives before they are mapped to the display screen.

Indeed, Greene discloses that culling is performed after mapping. See, for example, FIG. 6 and lines 40-49 of column 6, which disclose Greene's process. The first step of the process is to render a frame from a list of primitives. Rendering includes generating an image of the primitives for display on a display screen, which as discussed above necessarily includes mapping the primitives to the screen using a selected perspective (i.e., the camera view point). For at least the above reasons, Applicant respectfully submits that claim 1 and claims 2-14, which depend from claim 1 are in condition for allowance.

Claim 15 stands rejected as being obvious in view of Greene. Applicant respectfully traverse the rejection. Claim 15 recites “[a] computer program product, tangibly stored on machine-readable medium, for processing a computer graphics illustration having pieces of artwork, the product comprising instructions operable to cause a processor to: map outlines of at least one of the pieces of artwork onto a grid of cells; determine the total number of outlines of

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pieces of artwork that map to a cell of the grid; and identify the cell as a complex region based on the total number of outlines that map to the cell." For at least the reasons similar to those discussed above, Green does not disclose or suggest elements of claim 15. Accordingly, Applicant respectfully submits that claim 15 and claims 16-28, which depend from claim 15, are in condition for allowance.

Applicant requests that the Information Disclosure Statements (IDS) previously submitted on December 17, 2003, be considered by the examiner in the next action.

No fee is believed to be due. If, however, there are any charges or credits, please apply them to Deposit Account No. 06-1050.

Respectfully submitted,

Date: Mar. 5, 2004



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